Space Weather Forecast

Issued on Thursday, 07 April 2022 at 13:26 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Chance of G1/Minor Geomagnetic Storms on day 3 (9th April) due to possible CME arrival and/or coronal hole influences.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Low over the past 24 hours, with a few common class flares. There are currently three sunspot regions on the visible side of the sun. The largest region remains in the southwest quadrant of the disc, however this has shown some signs of decay and produced no noteworthy activity. All other regions are weak and stable.
No Earth-directed coronal mass ejections (CMEs) have occurred in the last 24 hours, although there are a number of filaments (lines of material held together on the Sun by its magnetic field) visible on the Earth-facing disc that are being monitored for any potential lift.

Solar Wind / Geomagnetic Activity: The solar wind has been at background or slightly elevated levels, with speeds peaking at 466 km/s. The magnetic field carried by the wind was mostly weak, with its north-south component also weak. Geomagnetic activity was Quiet to Unsettled (Kp1-3) with Active interval 07/0300-0600 UTC and 07/0900-1200 UTC.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) was at background with no solar radiation storms occurring.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is forecast to be Low to Very Low, with relatively fewer and less complex active regions on the visible side of the sun than of late.

Solar Wind / Geomagnetic Activity: The slightly elevated solar winds are expected to ease to mainly background later on day 1 (7th April). These will last until day 3 (9th April), when the arrival of the fast wind of coronal hole 72 is expected, also there is a slight chance of a glancing interaction from a further CME which left the Sun around 04/2200 UTC, although this is very low confidence. Geomagnetic activity is forecast to be Quiet to Unsettled on days 1 and 2 (7th and 8th) with a chance of further Active intervals, before a further enhancement to Unsettled to Active, with a chance of G1/Minor Storms occurs on day 3 (9th), this may extend into day 4 (10th April).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is forecast to remain at background with no solar radiation storms occurring.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	20	20	40	20
Strong	G3	No	2	2	2	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	10	10	5	2
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	2	2	2	1
Very Active	≥ S3 *	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

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